

OPTIS-mission: Improved Tests of Special and General Relativity

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OPTIS is a mission which gives a complete test of Lorentz invariance and of the universality of the gravitational redshift, both being important principles of the foundation of Einsteins General Relativity. Furthermore, also consequences of General Relativity can be tested, namely the Lense-Thirring effect as well as the perihelion advance. All these test can be performed with a precision being up to three orders of magnitude better than previous tests or observations. In this talk we present recent progress made in the experimental techniques as well as in the treatment (numerical and analytical) of the deformation of bodies - in our case the optical resonators - in the gravity gradient field. The latter might also be of importance for other space missions using test masses.